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(54) Water-in-oil emulsion type solid cosmetics.

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(57) A water-in-oil type emulsified solid composition containing a silicone oil, a solid wax, water, and a polyoxyalkylene modified organopolysiloxane, wherein the water content is 5% by weight or more, based upon the total amount of the composition.

WATER-IN-OIL EMULSION TYPE SOLID COSMETICS

BACKGROUND OF THE INVENTION

1. Field of the Invention

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The present invention relates to a water-in-oil type emulsified cosmetic composition containing, as essential constituents, a silicone oil, solid wax, water, and polyoxyalkylene modified organopolysiloxane. More specifically, it relates to a water-in-oil emulsion type solid cosmetic composition having an excellent stability and a novel feeling when applied, i.e., providing a cool and refreshing feeling when applied to the skin even in the form of a solid.

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2. Description of the Related Art

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As the base types generally used for solid cosmetic compositions, solid oily types obtained by solidifying oil, solid pressed types obtained by pressing powder, or mixtures of powder and oily agents, and the like are known. These base types are properly used depending upon the purposes and methods of use of the cosmetic composition. For example, solid oily types are usually used for stick type cosmetics such as lipsticks, and solid pressing types are usually used for a foundation applied with a puff or sponge. Recently, lipsticks containing water formulated therein have been developed and are available on the market. However, since such lipsticks having a good stability are difficult to obtain, the amount of water formulated is small and, therefore, there is little difference in the application feelings thereof when compared to conventional solid oily types. Furthermore, when volatile oily agents are used, lipsticks having a good stability are difficult to obtain, and further, must be filled in containers having high sealing properties. Because of the above-mentioned limitations, lipsticks containing water therein are not popular in the market. Namely, water-in-oil emulsion type solid cosmetics having a good stability were not available heretofore, and furthermore, lipsticks containing a large amount of water together with a volatile oily agent are not known in the art.

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On the other hand, emulsified type cosmetics are widely used as basic cosmetic because water and humectants can be formulated therein and excellent treatment properties can be obtained. In the case of the emulsion type cosmetics, the selectable content conditions thereof in containers can be the fluidizable emulsified type or the less fluidizable cream type, and therefore, the forms of the containers to be filled are considerably limited due to the fluidity of the contents. Namely, the containers are limited to bottle or tubes in the case of the cream type, and to bottles in the case of the emulsion type. Also, the emulsified type cosmetics have a poor portability, although the effects on the skin are excellent.

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Recently, cosmetics using silicone oil as a water repellent base agent have been extensively studied. This is because, since silicone oil has excellent water repellent properties, the coated film of cosmetics after applied is has a strong resistance to water and sweat (or perspiration) and has a good adherence to the skin, and therefore, silicone oil is utilized in, for example, oily solid type cosmetics in which the oil phase is a continuous phase, and water-in-oil type emulsion or cream cosmetics.

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Further, the formulation of volatile oily agents has been studied. This formulation is intended to suppress the clinging feelings to the skin caused by the use of conventional oils, which is a drawback of oily solid type cosmetics and water-in-oil type cream cosmetics, by volatilizing the volatile oil after application to the skin. But emulsified solid cosmetics containing silicone oil formulated therein are not known, because the stability of the resultant cosmetics is poor when silicone oil, especially volatile silicone oil, is formulated.

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SUMMARY OF THE INVENTION

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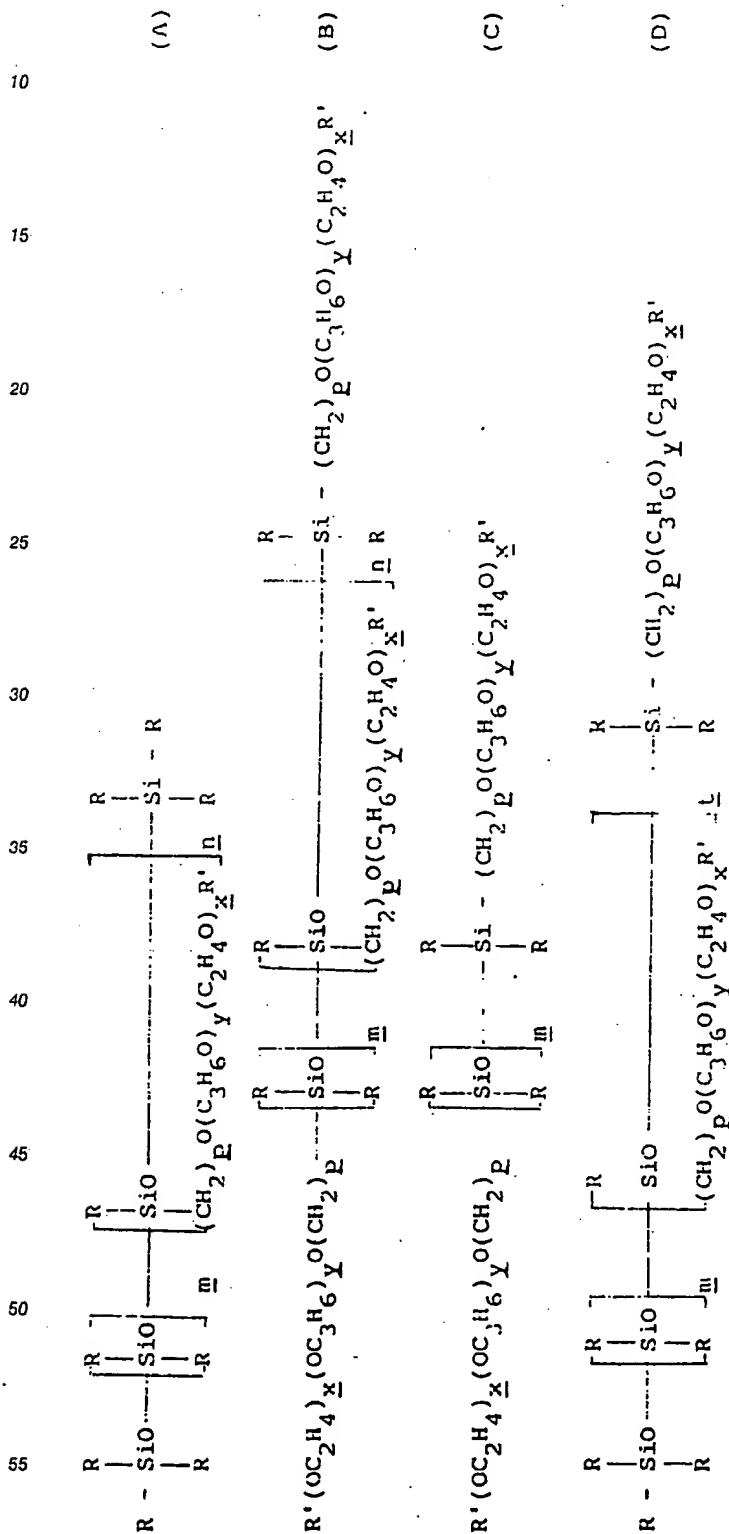
Accordingly, the objects of the present invention are to eliminate the above-mentioned disadvantages of the prior art and to provide an emulsified solid cosmetic composition containing silicone oil having an excellent stability and good feeling upon application to the skin.

Another object of the present invention is to provide a water-in-oil emulsified solid cosmetic composition having an excellent usability, i.e., extendability and refreshing feeling, and capable of being filled in a wide

variety of containers.

Other objects and advantages of the present invention will be apparent from the following description.

In accordance with the present invention, there is provided a water-in-oil type emulsified solid cosmetic composition comprising a silicone oil, a solid wax, water, and at least one polyoxyalkylene modified organopolysiloxane having the following structures (1), (2), (3), and/or (4), wherein the water content is 5% by weight or more, based upon the total amount of the composition.



where R is an alkyl group having 1 to 3 carbon atoms or a phenyl group, R' is hydrogen or an alkyl group having 1 to 12 carbon atoms, p is an integer of 1 to 5, m is an integer of 5 to 100, n and x are integers of 1 to 50, and y and l are integers of 0 to 50.

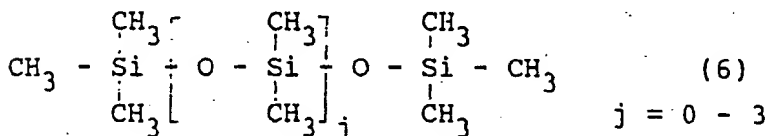
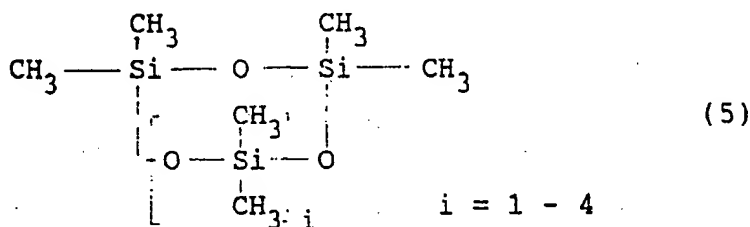
Polyoxyalkylene modified organopolysiloxane preferably contains 5 to 40% by weight of polyoxyalkylene groups in the molecule and the polyoxyalkylene modified organopolysiloxane preferably has a molecular weight of 1000 or more.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The term "water-in-oil type emulsified solid cosmetic composition" used herein means compositions (including a paste) which are solidified, without providing a fluidizability, at a temperature range (i.e., 0°C - 50°C, at which cosmetics are generally used.

The silicone oils usable in the present invention include those conventionally used in cosmetics compositions. Examples of such oils are dialkyl polysiloxanes such as dimethyl polysiloxane, dimethyl cyclopolysiloxane, and diethyl polysiloxane; alkylaryl polysiloxanes such as methylphenyl polysiloxane; diaryl polysiloxane; fatty acid modified polysiloxanes; higher alcohol modified polysiloxanes; amino modified polysiloxane; and polyoxyalkylene modified organopolysiloxanes. These silicon oils may be used alone or in any mixture thereof.

The amount of the silicone oil formulated into the composition depends upon the other oil components, but the silicon oil is preferably used in an amount of about 30% to 97% by weight of the oil phase or about 5% to 85% by weight of the total cosmetic composition. Especially, volatile silicone oil having the following structure (5) or (6) can be preferably used to advantageously provide a refreshing feeling upon application. The preferable formulated amount is 30% to 97% by weight of the oil phase or 5% to 85% by weight of the total composition.



The solid waxes usable in the present invention include those conventionally used in cosmetic compositions. Examples of such waxes are petroleum waxes such as paraffin wax, microcrystalline wax, and the like; mineral waxes such as ozokerite, ceresin, and the like; and natural waxes such as carnauba wax, candelilla wax, and the like; and mixed waxes, having a melting point of 50°C or more. Especially, the use of waxes containing linear and/or branched hydrocarbon with 25 to 52 carbon atoms, as a main constituent is preferable.

Although the types of wax used are selected in accordance with the types of oil used, wax esters such as carnauba wax and candelilla wax are preferably used in combination with the linear and/or branched hydrocarbon wax. Furthermore, the hydrocarbon solid waxes generally available on the market are obtained in the form of a mixture and therefore, these waxes have a different number of carbon atoms, and isoparaffin and naphthene are included. Even where the wax contains hydrocarbons having 25 to 52 carbon atoms as a main component, those waxes may be used in the present invention.

Although the amount of solid wax to be formulated may be adjusted based upon the desired hardness, the preferable ratio (by weight) of the oil component; the solid wax is 20:1 - 3:1 and the preferable amount of the solid wax is 5% to 20% by weight.

The polyoxyalkylene modified organopolysiloxanes usable in the present invention are those having the above-mentioned formulae (1), (2), (3), and (4), and the polyoxyalkylene modified organopolysiloxane preferably contains 5% to 40% by weight of polyoxyalkylene groups in the molecule, and the molecular weight of the polyoxyalkylene modified organopolysiloxane is preferably 1000 or more, specially 2000 to 20000.

Although the amount of the polyoxyalkylene modified organopolysiloxane formulated depends upon the amount of the aqueous phase to be emulsified, the preferable amount to be formulated is 0.2% to 10% by weight.

The amount of the water formulated in the present invention is 5% by weight or more, especially 10% to 60% by weight, of the total cosmetic composition. When the amount of the water formulated is too small, the desired cool and refreshing feelings upon application is not obtained. To obtain a very good refreshing feeling upon application, the water is preferably formulated into the cosmetic compositions in an amount of 10% by weight or more of the total cosmetic composition.

According to the present invention, in addition to the above-mentioned essential constituents (i.e., silicone oil, solid wax, water, and polyoxyalkylene modified organopolysiloxane), pigment powder may be formulated.

The pigments usable in the present invention may include those conventionally used in the cosmetic composition, such as inorganic pigments, organic pigments, and metallic pigments. Examples of such inorganic pigments are talc, kaolin, calcium carbonite, zinc oxide, titanium dioxide, red iron oxide, yellow iron oxide, black iron oxide, ultramarine blue, titanium coated mica, bismuth oxychloride, red oxide (rouge), binding pigments, ultramarine pink, chromium hydroxide, mica titanium, chromium oxide, cobalt aluminum oxide, prussian blue, carbon black, silicic anhydride, magnesium silicate, bentonite, mica, zirconium oxide, magnesium oxide, zinc oxide, titanium oxide, light calcium carbonate, heavy magnesium carbonate, and calamine. The use of hydrophobically treated pigment powder is especially preferable. For the hydrophobical treatment, any conventional method may be used as long as the surface is hydrophobically treated. Examples of such methods are treatment of the surface with silicone having high viscosity; coating of the surface with silicone resin reacted with alkyl hydrogen polysiloxane or those further treated with alkene; treatment with cationic, anionic, and/or nonionic surfactants; and coating of the surface with wax. Although there are no critical limitations to the amount of the pigment, the amount of the pigment powder formulated is preferably 50% by weight or less of the total amount of the cosmetic composition.

In the emulsified composition according to the present invention, any components conventionally used can be formulated within the range which does not impair the effect of the present invention. Examples of such components are as follows.

As the aqueous phase component, alcohols such as ethanol, humectants including polyols; mucopolysaccharides such as sodium hyaluronate; and organic acids and organic acid salts such as amino acids, amino acid salts, and hydroxyacid salts, can be exemplified.

As the oil phase components, solid or semi-solid oil components such as petrolatum, lanolin, ceresine, silicone wax, higher fatty acids, higher alcohols; fluid oil components such as squalane, liquid paraffin, ester oils, and triglycerides; surfactants such as cationic surfactants, anionic surfactants, nonionic surfactants; drugs such as vitamin E and vitamin E acetate; styptics; antioxidants; preservatives; flavors; pH controllers such as sodium biphosphate; thickeners; and UV-ray absorbers can be formulated, of these components, the humectants such as polyols, mucopolysaccharides (e.g., sodium hyaluronate), organic acids, organic acid salts (e.g., amino acids, amino acid salts hydroxyacid salts) are preferably formulated to suppress the water volatilization to within the range which does not impair the effect of the present invention.

According to the present invention, by using the oil phase containing the silicone oil and solid wax, as another phase, and the polyoxyalkylene modified organopolysiloxane, as an emulsifier, a large amount of water can be formulated and the non-fluidizable solid water-in-oil type emulsified cosmetic composition having an excellent stability (i.e., water volatilization is small and "cracks" are not generated) and providing novel application feelings (i.e., cool feeling upon application) and having an excellent usability (i.e., excellent extendability and refreshing feeling) can be obtained. Especially, when the present water-in-oil type emulsified solid cosmetic composition is used as a make-up cosmetic composition, an advantageous make-up cosmetic composition capable of providing a prolonged retainability of the cosmetic finish and a good feeling upon application, and having various humectants and drugs in the aqueous component or even in the solid cosmetic composition, can be obtained. Furthermore, due to the excellent stability thereof, the present cosmetic composition may be filled in a wide variety of containers having various shapes.

50 EXAMPLES

The present invention will now be further illustrated in detail by, but is by no means limited to, the following Examples, wherein "percentages" are all by weight unless otherwise noted.

55 Example 1

Ingredient	%
(1) Decamethylcyclopentasiloxane	38
(2) Aristo wax (165 ° F) (solid wax)	10
(3) Polyoxyalkylene modified organopolysiloxane	2
(4) Deionized water	50.

The components (1) - (3) were heated at 80 ° C, followed by adding the component (4) thereto. After emulsifying, the mixture was cooled at room temperature to obtain the desired water-in-oil type emulsified solid cosmetic composition.

Similarly, according to the same procedure as in Example 1, the following cosmetic compositions of the Examples 2 to 4 and the Comparative Examples 1 to 6 were prepared.

Example 2

Ingredient	%
(1) Decamethylcyclopentasiloxane	38
(2) Cerecin B	10
(3) Polyoxyalkylene modified organopolysiloxane	2
(4) Deionized water	50

Example 3

Ingredient	%
(1) Decamethylcyclopentasiloxane	38
(2) PM wax 82 (solid wax)	10
(3) Polyoxyalkylene modified organopolysiloxane	2
(4) Deionized water	50

Comparative Example 1

Ingredient	%
(1) Decamethylcyclopentasiloxane	38
(2) Partial ester of dextrin palmitate	10
(3) Polyoxyalkylene modified organopolysiloxane	2
(4) Deionized water	50

Comparative Example 2

Ingredient	%
(1) Decamethylcyclopentasiloxane	38
(2) Stearic acid	10
(3) Polyoxyalkylene modified organopolysiloxane	2
(4) Deionized water	50

10 Comparative Example 3

Ingredient	%
(1) Decamethylcyclopentasiloxane	38
(2) Hydrogenated castor oil	10
(3) Polyoxyalkylene modified organopolysiloxane	2
(4) Deionized water	50

20 The water-in-oil type emulsified solid cosmetic compositions obtained in Examples 1 - 3 and Comparative Examples 1 - 3 using various waxes were filled in glass bottles and the glass bottles were allowed to stand, without caps, in constant temperature baths at 25° C and 50° C. The weight loss with the elapse of time and the stability (e.g., generation of cracks and separation) were determined. The results are shown in Table 1.

Table 1

		Standing temperature without cap	Weight loss (%) with elapse of time ^{*1}			Stability ^{*2}
			1 week	2 week	3 week	
Example 1		25°C	0.4	1.1	1.4	Good
		50°C	2.3	3.7	4.9	
"	2	25°C	0.6	1.0	1.4	Good
		50°C	2.2	4.6	7.6	
"	3	25°C	1.0	1.8	2.4	Good
		50°C	5.3	12.8	17.8	
Comparative Example 1		25°C	23.0	49.7	96.8	Poor
		50°C	98.6	98.9	99.0	
"	2	25°C	20.7	44.3	92.2	Poor
		50°C	59.3	75.5	97.2	
"	3	25°C	24.1	48.3	95.4	Poor
		50°C	64.3	88.8	98.1	

*1 Weight loss with elapse of time

$$= \frac{(\text{Initial weight} - \text{Weight with elapse of time})}{\text{Weight of volatile component}} \times 100$$

*2 Stability:

Good No separation and no cracks at 25°C
or 50°C after standing for 3 weeks

Poor Separation and/or cracks
observed at 25°C or 50°C after
standing for 3 weeks

As clear from the results shown in Table 1, the cosmetic compositions of Examples 1 to 3 are stable and have no weight loss.

Example 4

Ingredient	%
(1) Dimethylpolysiloxane (6 cs)	38
(2) Aristo wax (165° F)	10
(3) Polyoxyalkylene modified organopolysiloxane	2
(4) Deionized water	50

Comparative Example 4

Ingredient	%
(1) Decamethylcyclopentasiloxane	38
(2) Aristo wax (165° F)	10
(3) Diglyceryl diisostearate	2
(4) Deionized water	50

Comparative Example 5

Ingredient	%
(1) Liquid paraffin	38
(2) Aristo wax (165° F)	10
(3) Polyoxyalkylene modified organopolysiloxane	2
(4) Deionized water	50

Comparative Example 6

Ingredient	%
(1) Decamethylcyclopentasiloxane	85
(2) Aristo wax (165 ° F)	10
(3) Polyoxyalkylene modified organopolysiloxane	2
(4) Deionized water	3

The feeling upon application of the water-in-oil type emulsified solid cosmetic compositions of Examples 1 and 4 and Comparative Examples 5 and 6 was evaluated. Note, separation occurred in the cosmetic composition of Comparative Example 4 immediately after preparation and good solid state was not obtained.

The results are shown in Table 2.

Table 2

	Cooling feeling	Refreshing feeling	Extendability
Example 1	o	o	o
" 4	o	o	o
Comparative Example 5	Δ	x	Δ
" 6	x	o	o
Panel: 20 members o ... Yes ... 15 members or more Δ ... Yes ... 7 - 14 members x ... Yes ... 6 members or less			

Example 5: Foundation

Ingredient	%
(1) Decamethylcyclopentasiloxane	38
(2) Aristo wax (165 ° F)	10
(3) Polyoxyalkylene modified organopolysiloxane	2
(4) Hydrophobically treated pigment powder	30
(5) Deionized water	20
(6) Preservative	q.s.
(7) Flavor	q.s.

The components 1 to 3 and 7 were heated to dissolve at 80 ° C, followed by adding the component 4, and the mixture was dispersed at 80 ° C in a homogenizer. Thereafter, a mixture of the components 5 and 6 previously heated to 80 ° C was added to this mixture to effect the emulsification. The resultant emulsified composition was then filled in a container and allowed to cool to room temperature, and thus the desired water-in-oil type emulsified solid foundation was obtained.

Comparative Example 7

Ingredient	%
(1) Decamethylcyclopentasiloxane	38
(2) Carnauba wax	10
(3) Polyoxyalkylene modified organopolysiloxane	2
(4) Hydrophobically treated pigment powder	30
(5) Deionized water	20
(6) Preservative	q.s.
(7) Flavor	q.s.

The composition was prepared in the same manner as in Example 5.

The resultant cosmetic foundations of the Example 5 and Comparative Example 7 were evaluated in the same manner as in Example 1.

The results are shown in Table 3. As clear from the results shown in Table 3, the solid foundation of Example 5 was stable and the weight loss by volatilization was small.

Table 3

	Standing temperature without cap	Weight loss (%) with elapse of time *			Stability *
		1 week	2 week	3 week	
Example 5	25°C	2.0	3.8	5.1	Good
	50°C	7.8	14.4	19.9	
Comparative Example 7	25°C	7.1	12.6	21.0	Poor
	50°C	60.7	92.2	98.0	

* see Table 1

Example 6: Stick Type Emulsified Foundation

Ingredient	%
(1) Octamethylcyclotetrasiloxane	15
(2) Decamethylcyclopentasiloxane	20
(3) Glyceryl triisooctanate	3
(4) Polyoxyalkylene modified organopolysiloxane	2
(5) Cerecin wax	10
(6) Hydrophobically treated pigment powder	30
(7) Flavor	q.s.
(8) Deionized water	17
(9) Glycerol	2
(10) 1,3-Butylene glycol	1
(11) preservative	q.s.

The components (1) - (5) and (7) were heated to 80°C and, after dissolution, the component (6) was

added thereto, followed by dispersing at 80 ° C in a homogenizer. Further, a mixture of the components (8) - (11) previously heated to 80 ° C was added to emulsify the mixture, and thereafter, the mixture was filled into a stick type container, followed by cooling to a room temperature, and thus the desired stick type emulsified foundation was obtained.

Example 7: Urea Formulated Solid Cosmetics

Ingredient	%
(1) Trimethylsiloxysilicate	3
(2) Dimethylpolysiloxane	10
(3) Decamethylcyclopentasiloxane	20
(4) Hydrocarbon wax (C ₃₂ - C ₄₀)	10
(5) Polyoxyalkylene modified organopolysiloxane	2
(6) Deionized water	46
(7) Urea	3
(8) Glycine	3
(9) Diglycerol	2
(10) Propylene glycol	1
(11) Preservative	q.s.

The components (1) - (5) were heated to 80 ° C and, after dissolution, a mixture of the components (6) - (11) previously heated to 80 ° C was added thereto, followed by emulsifying and dispersing, and thereafter, the mixture was filled into an ointment container, followed by cooling to room temperature, and thus a desired solid cosmetic composition containing urea was obtained.

Example 8: Compact Type Emulsified Foundation

Ingredient	%
(1) Decamethylcyclopentasiloxane	36
(2) Dimethylpolysiloxane (6 c.s.)	2
(3) Jojoba oil	4
(4) Cerecin	8
(5) Microcrystalline wax	1
(6) Polyoxyalkylene modified organopolysiloxane	2
(7) Hydrophobically treated pigment powder	20
(8) Deionized water	10
(9) Glycerol	15
(10) 1,3-Butylene glycol	2
(11) Preservative	q.s.
(12) Perfume	q.s.

The components (1) - (6) and (12) were heated to 70 ° C, and then the component (7) was added thereto, followed by dispersing. Then, a mixture of the components (8) - (11) previously heated to 80 ° C was added thereto followed by emulsifying and dispersing, and thereafter, the resultant dispersion in the fluidizable state was filled in an inner dish, followed by cooling to room temperature, and then placed in a compact type container to obtain the desired compact type emulsified foundation. The resultant emulsified foundation has moisturizing feeling, cool and refreshing feelings and is easy to carry as a portable cosmetic.

The following cosmetic compositions were prepared as follows. Namely, the oil phase components were

dissolved upon heating at 80° C, followed by dispersing the powder. Then, the aqueous components previously heated to 80° C were emulsified and dispersed therein, followed by filling in a fluidizable state into a container, and thereafter, the container was cooled to obtain the desired product. All of the products had a good stability and an excellent applicability and usability, such as a refreshing feeling.

Example 9: Rouge

Ingredients	%
(1) Dimethylpolysiloxane (1.5 c.s.)	20
(2) Decamethylcyclopentasiloxane	10
(3) Cetyl isooctanate	15
(4) Polyoxyalkylene modified organopolysiloxane	3
(5) Hydrocarbon wax	12
(6) Flavor	q.s.
(7) Hydrophobically treated pigment powder	30
(8) Deionized water	6.9
(9) Sodium hyaluronate	0.1
(10) Sodium chondroitin sulfate	1.5
(11) Polyethylene glycol	1.5
(12) Preservative	q.s.

Example 10: Lipstick

Ingredient	%
(1) Octamethylcyclotetrasiloxane	10
(2) Dimethylpolysiloxane (6 cs)	20
(3) Carnauba wax	2.8
(4) Aristo wax (165° F)	8
(5) Polyoxyalkylene modified organopolysiloxane	5
(6) Red iron oxide	0.3
(7) Yellow iron oxide	1
(8) Red #204	0.7
(9) Dibutylhydroxy toluene	q.s.
(10) Flavor	q.s.
(11) Deionized water	51.4
(12) Atelocollagen	0.3
(13) Sodium pyrrolidone carboxylate	0.5

Example 11

Ingredient	%
(1) Squalane	10
(2) Lanolin	2
(3) Octamethylcyclotetrasiloxane	27.69
(4) Isoparaffin (b.p. = 155 °C)	10
(5) Trimethylsiloxy silicate	3
(6) Hydrocarbon wax	8
(7) Polyoxyalkylene modified organopolysiloxane	3
(8) Deionized water	30
(9) Glycerol	5
(10) Sodium lactate	0.3
(11) Sodium L-glutamate	0.3
(12) Sodium hyaluronate	0.1
(13) Sorbitol	0.5
(14) Red #202	0.01
(15) Menthol	0.1
(16) Flavor	q.s.

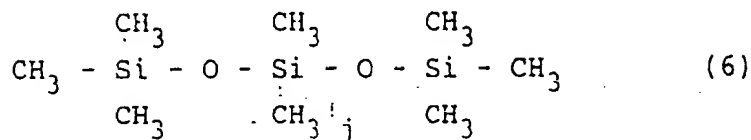
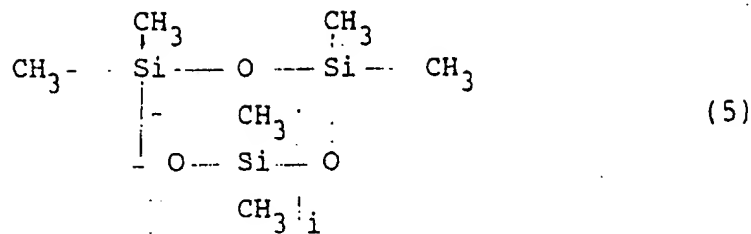
Claims

1. A water-in-oil type emulsified solid cosmetic composition comprising a silicone oil, a solid wax, water, and at least one polyoxyalkylene modified organopolysiloxane selected from the group consisting of those having the following structures (1), (2), (3), and (4), the water content being 5% by weight or more, based on the total amount of the composition.

[illegible]
$$\begin{array}{c} \text{R}'(\text{OC}_2\text{H}_4)_x(\text{OC}_3\text{H}_6)_y\text{O}(\text{CH}_2)_p \\ \left[\begin{array}{c} \text{R}' \\ | \\ \text{SiO} \\ | \\ \text{R} \end{array} \right]_m \left[\begin{array}{c} \text{R}' \\ | \\ \text{SiO} \\ | \\ \text{R} \end{array} \right]_n \left[\begin{array}{c} \text{R}' \\ | \\ \text{SiO} \\ | \\ \text{R} \end{array} \right]_p \text{O}(\text{C}_3\text{H}_6)_y(\text{C}_2\text{H}_4)_x\text{R}' \end{array} \quad (2)$$
$$\begin{array}{c} \text{R}'(\text{OC}_2\text{H}_4)_x(\text{OC}_3\text{H}_6)_y\text{O}(\text{CH}_2)_p \\ | \\ \text{R}-\text{Si}-\text{O}(\text{C}_3\text{H}_6\text{O})_y(\text{C}_2\text{H}_4)_x\text{R}' \\ | \quad | \\ \text{R} \quad \text{R} \end{array} \quad (3)$$
$$\begin{array}{c}
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 | \\
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 SiO - \\
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 R \\
 | \\
 (CH_2)_p O(C_3H_6O)_y (C_2H_4O)_x R' \\
 | \\
 R \\
 | \\
 Si - (CH_2)_p O(C_3H_6O)_y (C_2H_4O)_x R' \\
 | \\
 R
 \end{array}
 \quad (4)$$

wherein R is an alkyl group having 1 to 3 carbon atoms or a phenyl group, R' is hydrogen or an alkyl group having 1 to 12 carbon atoms, p is an integer of 1 to 5, m is an integer of 5 to 100, n and x are independently integers of 1 to 50, t and y are independently integers of 0 to 50.

55 2. A water-in-oil type emulsified solid cosmetic composition as claimed in claim 1, wherein said silicone oil is at least one member selected from the group consisting of volatile silicone oils having the following structures (5) and (6):



wherein i is an integer of 1 to 4 and j is 0 or an integer of 1 to 3.

3. A water-in-oil type emulsified solid cosmetic composition as claimed in claim 1, wherein the main component of said solid wax is at least one member selected from the group consisting of linear and branched hydrocarbon waxes having 25 to 52 carbon atoms.

4. A water-in-oil type emulsified solid cosmetic composition as claimed in claim 1, wherein the amount of said silicone oil is 5% to 80% by weight, based on the total amount of the cosmetic composition.

5. A water-in-oil type emulsified solid cosmetic composition as claimed in claim 2, wherein the amount of said volatile silicone oil is 10% to 60% by weight, based on the total amount of the cosmetic composition.

6. A water-in-oil type emulsified solid cosmetic composition as claimed in claim 1, wherein the amount of the solid wax is 3% to 30% by weight based on the total amount of the cosmetic composition.

7. A water-in-oil type emulsified composition as claimed in claim 1, wherein the composition further contains at least one member selected from the group consisting of pigments, humectants, solid oils, semisolid oils, fluidized oils, surfactants, medical agents, stiptics, antioxidants, preservatives, preservatives, flavors, pH controllers, clay minerals, thickeners, and ultraviolet absorbers.



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	EP-A-0 152 953 (UNION CARBIDE) * Claims; page 1, line 1 - page 2, line 1; page 7, line 18 - page 9, line 16; page 29, line 7 - page 30, line 16 * ---	1-7	A 61 K 7/48
Y	EP-A-0 271 925 (REVLON) * Claims; page 1, lines 13-48; page 2, lines 45-57; page 5, lines 28-39 * ---	1-7	
Y	EP-A-0 251 679 (DOW) * Claims; page 10, table 4 * ---	1-7	
X	EP-A-0 076 146 (PROCTER & GAMBLE) * Claims; page 13, lines 1-16 * -----	1-7	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A 61 K
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 17-08-1989	Examiner WILLEKENS G.E.J.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			